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Edouard Maurel-Segala* (emaurel@stanford.edu), Department of Statistics, Sequoia Hall,
390 Serra Mall, Stanford University, Stanford, CA 94305-4065. *Matrix integrals and enumeration
of maps.*

Since the birth of the theory of random matrix theory, combinatorial objects have been an efficient tool to describe the behavior of the spectrum in high dimension. Indeed, the moments of the spectral measure of a Wigner matrix converge to Catalan's numbers. Aware of this fact, physicists have expanded this relation between random matrices and enumeration of combinatorial objects to a large variety of model by using Gaussian calculus. In this talk we would like to approach this problem from a mathematical perspective. We will consider several-matrices models which are small perturbation of the model of Wigner but with some dependence between the entries of the matrices. Then we will show that enumerations of graphs embedded on surfaces of a given genus appear naturally when one try to understand the limit of such models. (Received January 18, 2007)